



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

One Winter Street Boston, MA 02108 • 617-292-5500

Disclaimer: Individuals and/or companies listed below were initially developed in collaboration with the New England Interstate Water Pollution Control Commission (NEIWPCC) HAB Workgroup in 2016. In anticipation of cyanotoxin analyses required under the fourth Unregulated Contaminant Monitoring Rule (UCMR4), the listing was updated by MassDEP in 2018. Companies on this list have been identified as performing services related to cyanobacteria and cyanotoxin analysis, but should not be considered an endorsement by MassDEP or any state agency of their qualifications. Public Water Systems considering contracting with any individual or company should verify that they have the adequate training and are competent to perform the work for which they are being considered. Prices should be viewed as guidelines of what to expect for each lab, rather than final quotes. To request revisions or additions to this list, please email Kristin.Divris@state.ma.us Subject: CyanoServices Request

Cyanobacteria and/or Cyanotoxins Contract Services List (Alphabetical by organization)

For a complete list of laboratories approved by the United State Environmental Protection Agency (US EPA) for UCMR4, please go to: <https://www.epa.gov/dwucmr/list-laboratories-approved-epa-fourth-unregulated-contaminant-monitoring-rule-ucmr-4>

Academy of Natural Sciences – Phycology Section

Patrick Center for Environmental Research

1900 Benjamin Franklin Parkway

Philadelphia, PA 19103

Tel: (215) 299-1080

Fax: (215) 299-1079

Email General: patrickcenter@ansp.org

Email Don Charles: dfc63@drexel.edu

Email Frank Acker (primary soft-algae taxonomist): fwa23@drexel.edu

Services: Identification of algae and algal measurements/biovolume, cell counts, chlorophyll

Pricing: (Can give estimate based on sample, and separate the phytoplankton and periphyton in terms of how they are processed)

- Semiquantitative count (relative abundance, five-point scale, rare to abundant) – \$150-200
- Algal identification (cell count, biovolume) – \$440-550
- Chlorophyll (fluorometer) – Call for cost
- Diatom count – \$300

Analytical Services, Inc., (www.analyticalservices.com)

130 Allen Brook Lane

Williston, VT 05495

Tel: 800-723-4432

Primary Contact: Paul Warden

Primary Email: pwarden@analyticalservices.com

Additional Contact: Megan Kane

Additional Email: mkane@analyticalservices.com

Services: Algae Enumeration & Identification (SM 10200, to group / genus only, w/o biovolumes). Pathogen and Indicator species monitoring, including Cryptosporidium/Giardia (EPA 1623.1), Enteric Viruses (EPA 1615), Clostridium perfringens, Campylobacter, Legionella, male-specific and somatic coliphage, Enterococci, Total Coliform and E. coli, etc. Microscopic Particulate Analysis (MPA) for Filter Plant Optimization (EPA 910-R-96-001).

Pricing: For pricing, please contact Paul Warden at 800.723.4432 x15 or pwarden@analyticalservices.com

Aquatic Services, Wayne Carmichael, Ph.D.

42184 Tweedle Lane

Seaside, Oregon 97138

Tel: (503) 755-0711

Email: wayne.carmichael@wright.edu

Services: Retired, limits active lab work to Algal Identification/Enumeration.

Pricing:

- Algal Identification (genus/species when possible) – \$100
- Enumeration/biovolume – \$150

Beagle Bioproducts, Inc., (<http://beaglebioproducts.com/>)

959 Schrock Rd

Columbus, OH 43229

Tel: 614-519-0154

Email Stephanie: stephanie.smith@beaglebioproducts.com

Services: Toxin testing (ELISA for service- based testing, can also do LC/MS for contracts), algal ID (generally not enumeration, but can do that for contracts).

Pricing:

- Microcystin, cylindrospermopsin, anatoxin, or saxitoxin ELISA – \$125
- Algae identification (non-quantitative scan for presence/absence) – \$75

Note: may also offer a heavily discounted regular testing program for drinking water facilities in 2016.

CyanoPros, (www.cyanopros.com)

Alan Wilson - Assistant Professor

Auburn University - Fisheries and Allied Aquacultures

203 Swingle Hall

Auburn, Alabama 36849

Tel: 703-292-5190

Email General: cyanopros@auburn.edu, alan.e.wilson@gmail.com

Services: Phytoplankton enumeration (abundance or biovolume), identifications, toxin testing (ELISA only, for microcystin, cylindrospermopsin, saxitoxin), and other water quality analyses.

Pricing:

- Microcystin ELISA in algae – \$50
- Microcystin ELISA in water – \$50

- Microcystin ELISA in fish – \$125
- Cylindrospermopsin ELISA – \$100
- Saxitoxin ELISA – \$50
- Phytoplankton identification – \$50
- Phytoplankton culturing – \$100
- Phytoplankton enumeration – contact them
- Chlorophyll a – \$25

EcoAnalysts, Inc., (www.ecoanalysts.com)

Main Office

1420 South Blaine St., Suite 14, Moscow, ID 83843

Tel: (208) 882-2588

Fax: (208) 883-4288

Email General: eco@ecoanalysts.com

Email Gary: glester@ecoanalysts.com

Services: phytoplankton counts, biovolume, and identification (including cyanobacteria), toxin analysis

Pricing:

- ELISA (Microcystin, Saxitoxin, Anatoxin A, Cylindrospermopsin) – \$115-200, per analysis, depending on the number of samples in the batch
- Taxonomic analysis of cyanobacteria (taxa present, cell counts, cell densities, but no photographs or measurements/biovolume) – \$90 per sample
- Taxonomic analysis of cyanobacteria (taxa present, cell counts, cell densities, and also biovolume measurements) – \$135 per sample
 - Digital Images: \$25 per taxon
- Full community taxonomic analysis (no biovolume) – \$165-195
- Full community taxonomic analysis (with biovolume) – \$250-290

Note: Three full-time algae taxonomists on staff can turn samples fairly quickly depending on the number received per batch.

EnviroScience Inc. (www.enviroscienceinc.com)

5070 Stow Rd.

Stow, OH 44224

Tel: (800) 940-4025 or (330) 688-0111

Fax: (330) 388-3858

Primary Contact: Jennifer Vydra

Primary Contact Email: JVydra@enviroscienceinc.com

Services:

- Potentially Toxic Cyanobacteria Screening
- Taxonomic Algal Identification
- Algal Enumeration with or without Biovolume
- Diatom count
- Chlorophyll-a

- ELISA testing for:
 - Microcystin
 - Cylindrospermopsin
 - Anatoxin-a
 - Saxitoxin
 - BMAA
- We also have a range of staff biologists that can consult on mitigation, restoration or management projects.

Pricing: Pricing dependent on volume and turn-around time, please call or email

Eurofins Eaton Analytical, LLC, (www.eurofinsUS.com/Eaton)

(MA Lab Certification ID# is M-IN035)

110 South Hill Street

South Bend, IN 46617

Tel: (574) 233-4777

Fax: (574) 233-8207

Primary Contact Name: Brian Remus

Primary Contact Email: Brianremus@eurofinsUS.com

Additional Contact: Nathan Trowbridge

Additional Contact Email: Nathantrowbridge@eurofinsUS.com

Services: Cyanotoxin analysis using approved EPA methods 544, 545, 546 for the following parameters:

Parameter	CAS #	Reporting Limit
Anatoxin-a	64285-06-9	0.02 µg/L
Cylindrospermopsin	143545-90-8	0.05 µg/L
Microcystin-LA	96180-79-9	0.1 µg/L
Microcystin-LF	154037-70-4	0.1 µg/L
Microcystin-LR	101043-37-2	0.1 µg/L
Microcystin-LY	123304-10-9	0.1 µg/L
Microcystin-RR	111755-37-4	0.1 µg/L
Microcystin-YR	101064-48-6	0.1 µg/L
Nodularin	118399-22-7	0.1 µg/L

Pricing: \$550 per sample. Price can be adjusted for larger consolidated collection events.

GreenWater Laboratories/CyanoLab, (www.greenwaterlab.com), Andrew Chapman or Mark Aubel

205 Zeagler Drive, Suite 302

Palatka, FL 32177

Tel: (386) 328-0882 or (877) 869-2542

Fax: (386) 328-9646

Email General: info@greenwaterlab.com

Email Mark Aubel: achapman@greenwaterlab.com

Email Andrew Chapman: andrewchapman@greenwaterlab.com

Services: Algal Identification/Enumeration, Toxin Testing.

Pricing:

- Phycological Services
 - Potentially Toxic Cyanobacteria Screen – \$75
 - Qualitative Algal Identification – \$100
 - Cyanobacteria ID & Enumeration – \$150
 - Total Algal ID & Enumeration – \$200
 - Algal ID, Enumeration & Biovolume – \$325
- Microcystins/Nodularin:
 - ELISA – \$100-125
 - LC-MS & UV Scan – \$250-275
 - LC-MS/MS Suite (12 Variants & Nodularin) – \$250-275
 - LC-MS/MS MMPB (oxidation, extraction & analysis for water) – \$200-250
- Cylindrospermopsin
 - ELISA – \$125-150
 - LC-MS/MS – \$150-200
- Anatoxin-a
 - LC-MS/MS – \$200-250
- Saxitoxins
 - ELISA – \$125-150
 - LC-MS/MS Suite (C1/C2, GTX (1,2,3,4,5), dcGTX2/3, dcSTX, NEO, STX) – \$250-300
- BMAA (includes isomers AEG & DAB) LC-MS/MS – \$250-300
- 4 toxin bundle: Microcystins (ELISA), Cylindrospermopsin (LC-MS/MS), Saxitoxin (ELISA), Anatoxin-a (LC-MS/MS) – \$500

MWH Laboratories, (<http://www.mwhlabs.com>)

750 Royal Oaks Drive #100

Monrovia, CA 91016

Tel: (800) 566-LABS

Fax: (626) 386-1101

Email General: mwhlabs@mwhglobal.com

Services: Lab and Test Kits

Pricing: Unknown

MWRA, (www.mwra.com)

Five (5) MA certified laboratory locations

190 Tafts Avenue

Winthrop, MA 02152

Tel: (617) 660-7901

Fax: (617) 660-7960

Primary Contact Name: Dr. Michael F. Delaney

Primary Contact Email: Mike.Delaney@mwra.com

Services: MWRA does not provide lab services to private businesses or homeowners. MWRA performs chlorophyll and phycocyanin testing for its own use and contracts out other tests when needed. MWRA may consider chlorophyll and phycocyanin testing for other public water systems, but it would be handled on a case by case basis and is dependent on the project and impact to internal MWRA work.

Pricing: N/A

New England Environmental, Inc., (<http://www.neeinc.com/>)

15 Research Drive

Amherst, MA. 01002

Tel: (413) 256-0202

Fax: (413) 256-1092

Email General: info@neeinc.com

Services: Environmental site assessment, resource identification, planning, permitting, mitigation, restoration, and monitoring

Pricing: Unknown

New Hampshire Department of Environmental Services Laboratory (www.des.nh.gov)

29 Hazen Dr.

P.O. Box 95

Concord, NH 03302

Tel: (603) 271-3445

Fax: (603) 271-2997

Services: Cyanobacteria identification, cell concentration

Pricing: *Services/pricing are for New Hampshire residents only. External samples would be considered on a case by case basis.*

Northeast Laboratories, Inc. (www.nelabsct.com)

129 Mill Street

Berlin, CT 06037

Tel: (860) 828-9787 (Ext. 103 for Alan Johnson) or Toll free in state: (800) 826-0105 and out of state: (800) 654-1230

Fax: (860)829-1050

Email General: nelabsct@aol.com

Email Alan Johnson: alan@nelabsct.com

Services: Algae/Cyanobacteria Cell Counts & Identification (to genus, not to species), cyanotoxins (Microcystins, Nodularin, Cylindrospermopsin – ELISA, and Abraxis screening dip sticks, potentially also looking at LC-MS for Microcystins)

Pricing: Depends significantly on turnaround time (if things need to be rushed).

- Cell Counts (including identification) – \$45-80
- Semi-quantitative screening (Abraxis) – \$50
- ELISA – \$75-80
- Chlorophyll a – \$60

PhycoTech, Inc., (<http://www.phycotech.com>)

620 Broad Street, Suite 100

St. Joseph, MI 49085

Tel: (269) 983-3654

Fax: (866)728-5579/(269)983-3653

Email General: info@phycotech.com

Services: Phytoplankton counts (to species, Natural Units/mL and Cells/mL) including toxin and taste/odor cyanobacteria, with full archival slides if requested. Will have a fast response semi-automated solution available starting June 1, 2016.

Pricing:

- Phytoplankton Analyses
 - Species count w/ biovolume calculations – \$359
 - Species count w/o biovolume calculations – \$260
 - Genus count w/ biovolume calculations – \$239
 - Genus count w/o biovolume calculations – \$170
 - Division count – \$163
 - Relative count to species – \$260
 - Relative count to genus – \$170
- Phytoplankton Analysis Targeted for Algal Blooms
 - Rapid Assay: Qualitative Species (when possible) Assay weighted for Biovolume, with 3 HPMA slides – \$183
 - Rapid Assay: Qualitative Species (when possible) Assay weighted for Biovolume, without HPMA slides – \$122
 - Toxic/Bloom Scan, One Species – \$130
- Chlorophyll-A – \$99

Rhode Island Department of Health (http://www.health.ri.gov/programs/detail.php?pgm_id=132)

Division of State Laboratories and Medical Examiner

50 Orms Street

Providence, RI 02904

401-222-5600

Email: evan.philo@health.ri.gov, henry.leibovitz@health.ri.gov

Services: Algal Identification/Enumeration, toxin testing.

Pricing:

- Algal ID & Enumeration – \$50/sample.
- Microcystin/Nodularin Screen by ELISA – \$50/freshwater sample; \$100/brackish water sample.
- Mycrocystins (10), Nodularin, cylindrospermopsin (1) and anatoxin (1) by LC-MS/MS – \$200/sample.

SOLitude Lake Management (www.solitudelakemanagment.com)

590 Lake Street

Shrewsbury, MA 01545

Tel: (508) 885-0101 or (888) 480-5253 (LAKE)

Fax: (774) 745-0277

Email: Keith Gazaille, Regional Director: KGazaille@solitudelake.com

Services: Herbicide treatments, mechanical harvesting, mechanical hydro-raking, bottom barrier installation, diver assisted suction harvesting (DASH), diver hand-pulling, water quality and sediment sampling, vegetation mapping, bathymetric mapping; and:

- phytoplankton ID and enumeration
- in-source nutrient inactivation (alum)
- algaecide treatments (copper sulfate, Pak 27, GreenClean, etc.)
- Sonic Solutions design and installation

Pricing: Contact above

SUNY-ESF, Dr. Greg Boyer, Professor of Biochemistry

Syracuse, NY 13210

Tel: (315) 470-6825

Email Greg Boyer: gboyer@esf.edu

Services: Capable of analyzing for many cyanobacteria toxins: Microcystins and nodularins -80 congeners; Paralytic shellfish toxins 56 congeners; anatoxin-a (6 congeners), anatoxin a(S) 1 variant and cylindrospermopsin (3 congeners). Can also analyze chlorophyll, phycocyanin, and can identify species/genus for samples. Results from analyses are generally available within three to four weeks by telephone or email.

Pricing: Rush orders (within 10 days) include a surcharge of \$50-200 per sample, and advance arrangements must be made.

- Basic handling charge (includes data processing, sample filtration and preparation of extract, reports, voucher sample storage for 1 year and all labor) – \$110
- Microcystin analysis by PPIA (activity based enzyme assay) – \$40
- Microcystin analysis by ELISA (antibody based structure assay) – \$90
- Microcystin analysis by LCMS (HPLC with UV and mass selective detection) – \$40
- Microcystin analysis by LC-MS/MS (HPLC analysis with tandem MS detection) – \$90
- Tissue microcystins by MMPB (Bound microcystins in tissue by oxidation Anatoxin-a by HPLC-LCMS \$25 (HPLC with mass selective detection) – \$call
- Anatoxin-a by HPLC-FD (James et al HPLC via fluorescence detection) – \$call
- Cylindrospermopsin by HPLC-PDA-MS (HPLC assay w/ uv and MS detection) – \$25
- Cylindrospermopsin by ELISA (antibody based structure assay) – \$90
- Beta methyl amino alanine by LC-MS (HPLC with mass selective detection) – \$50
 - Bound BMAA as above (Determination of protein bound BMAA) – \$90
- Anatoxin-a(s) by ACEI (activity based enzyme inhibition assay) – \$call

Note: Greg cautioned that the lab is often manpower short – just because something is on the price sheet does not mean that the lab is actively running any given assay at any given time.

UConn Center for Environmental Science and Engineering (http://www.cese.uconn.edu/analyt_serv.html)

3107 Horsebarn Hill Road; U-4210

Storrs, CT 06269

Phone: (860) 486-2668

Email: christopher.perkins@uconn.edu

Services: Toxin analysis (ELISA and UPL/MS/MS)

Pricing:

- UPLC/MS/MS for microcystins (-RR, -YR, -LR, and -LA) and anatoxin-a in water – \$139 for CT state agencies and municipalities, otherwise \$182
 - Analysis for these compounds in filters – \$151 for CT state agencies and municipalities, otherwise \$199
- Total microcystin in water – \$81 for CT state agencies and municipalities, otherwise \$107

Vermont Department of Health Laboratory (http://healthvermont.gov/enviro/ph_lab/PublicHealthLaboratory.aspx)

PO Box 1125

Burlington, VT 05402-1125

Phone: (800) 660-9997 or (802) 338-4724

Fax: (802) 338-4706

E-Mail: Kirk.Kimball@vermont.gov

Services: toxin analysis

Pricing: *Services and pricing listed are for Vermont residents only. External samples would be considered on a case by case basis.*

- Microcystin and Cylindrospermopsin by ELISA – \$20.00
- Anatoxin-a by LC/MS/MS – \$20.00

Water Resource Services Inc., Dr. Kenneth J. Wagner, Ph.D., CLM

144 Crane Hill Road

Wilbraham, MA 01095

Tel: (413) 219-8071

Email: kjwagner@charter.net

Services: Identification and count to genus level, many other lake management services.

Pricing: Unknown

Note: Ken has a limit on how many clients he can serve, as this is only one of many lake management services he offers.